

SOWINSKI, Wilhelm (Warszawa, Niemcewicza 9)

Rational function tests during labor and fetal and neonatal mortality. Gin. Polska 25 no.3:299-302 July-Sept. 54.

1. Z II Kliniki Polonictwa i Chorob Kobiecych Akademii Medycznej w Warszawie. Kierownik: prof. dr W. Sowinski.  
(CESARIAN SECTIONS, indic.)

SOWINSKI, Wilhelm

Tuberculosis of female genitalia and infertility. Polski tygod.  
lek. 10 no.25:828-830 20 June '55.

1. Z II Kliniki Poloznictwa i Chorob Kobiecych A.M. w Warszawie;  
kierownik: prof. dr med. W. Sowinski; Warszawa, II Klinika Polozn.  
i Ginekologii A.M., ul. Karowa 2.

(TUBERCULOSIS, FEMALE, GENITAL, complications  
sterility)

(STERILITY, FEMALE, etiology and pathogenesis  
tuberc.female genital)

**SOWINSKI, Wilhelm; SZAMBORSKI, Jozef**

Primary cancer of the oviduct. Gin. polska 26 no.1:69-72 Jan-Mar 55.

1. z II Kliniki Polonictwa i Chorob Kobiecych A.M. w Warszawie.

Dyrektor: prof. dr W.Sowinski.

(**oviducts, neoplasms,**)

SOWINSKI, Wilhelm

Cancer of the corpus uteri. Gin.polska 26 no.2:211-220 Apr-June  
'55.

1. z II Kliniki Polonictwa i Chorob Kobiecych A.M. w Warszawie  
Kierownik: prof. dr W. Sowinski.  
(UTERUS, neoplasms)

SOWINSKI, Wilhelm

Treatment of cancer of the corpus uteri. Gin.polska 26 no.3:  
339-342 July-Sept 1955.

1. Z II Kliniki Polonictwa i Chorob Kobietych A.M. w Warszawie.  
Kierownik: prof. dr W. Sowinski.

(UTERUS, neoplasms,  
therapy)

SOWINSKI, Wilhelm.

Early diagnosis of uterine cancer. Gin. polska 27 no.1:111-115  
1956.

(UTERUS, neoplasms,  
diag., early (Pol))

SOWINSKI, Witold

Fungus diseases of the foot; mycology and clinical aspects. Przegl. derm., Warsz. 4 no.5:393-408 Sept-Oct 54.

(FOOT, diseases,

fungus dis.)

(FUNGUS DISEASES,

foot)

SOWINSKI, Witold; POCZEKAJ, Jan

Lichen sclerosus et atrophicus of the vulva. Ginek. pol. 34  
no.6:737-743 '63.

1. z Oddzialu Ginekologiczno-Pozozniczego Szpitala MSW w  
Poznaniu, (ordynator: doc.dr.med. J.Poczekaj) i z Oddzialu  
Dermatologicznego Szpitala MSW w Poznaniu (ordynator: doc.  
dr.med. W.Sowinski).

SOWINSKI, Wladislaw

8 years of experience with the treatment of spinal cord injuries.  
Chir. narz. ruchu 22 no.3:333-336 1957.

1. Z Wojewódzkiego Szpitala Chirurgii Urazowej w Piekarach Śląskich.  
Dyrektor i kierownik naukowy: Wl. Sowinski.

(SPINE, fractures

with spinal cord inj. surg. (Pol))

(SPINAL CORD, wds. & inj.

caused by fract. of spine, surg. (Pol))

SOWINSKI, Wladyslaw

Remote results following our method of surgical therapy of habitual shoulder dislocations. Chir. narzad. ruchu ortop. Pol. 29 no.3:359-364 '64.

1. Z Wojewodzkiego Szpitala Chirurgii Urazowej w Piekarach Slaskich  
(Dyrektor i Kierownik Naukowy: dr. med. W. Sowinski).

SOWKA, Jerzy, mgr inz.

Usefulness of preliminary washing of the feed prior to heavy media separation. Przegl. gorn 18 nr. 11:651-654 N 162.

SOWKA, Jozef, mgr inz.

Viscosity of heavy suspension liquors and the particular role  
of the velocity gradient. Przegl gorn 19 no.7/8:316-320 Jl-Ag '63.

SOWOWA, Kazimiera, dr.

Experiences obtained by applying the method of inter-enterprise analyses. Ekon org pracy 13 no.1:34-36 '62.

SOWOWA, Kazimiera

Interenterprise analysis in the textile industry. Mon org  
pracy 13 no.3:130-133 '62.

Soy A, G.P.

54600  
SOV143-59-11-8/19

**AUTHORS:** Balcer, B.M., Professor, Doctor of Technical Sciences;  
Kurganova, N.F., Candidate of Technical Sciences;  
Andronov, G.I., Engineer, Senior, V.T. Prof., Doctor of  
Technical Sciences, and Soyata, G.I., Engineer.

**TITLE:** Research on the Electric Properties of Some Silico-Organic Liquids

**PERIODICAL:** Izvestiya Vsesoyuzn. uchebno-tekhn. zavedeniy. Energetika,  
1959, № 11, pp. 59-66 (ISSN).

**ABSTRACT:** This is a report on the experiments carried out by the authors to ascertain the electric properties of some silicone fluids which are potential insprgments or sealing dielectrics. Silicone fluids are rarely used in the USSR, although liquid dielectrics are required for many types of electric equipment. The fluids, examined by the authors, are considerably different in their chemical composition from polyethyl- or polivinyl-siloxanes, especially by the presence of a

central benzene ring in the molecule. The tested liquids are designated as "Mc 243" and "Mc 529", they were synthetically produced by the Inst. of the Chemical Industry of Silicones at the AS USSR and tested at the Lenin Institute of Chemical Technology, M.I. Klinin.

Table 1 shows electric properties of the subject liquids plus Tallowja-2, Liquid, de iron temperature, the evaporation of the examined liquids, pine "Kolotyja-2" and vaseline oil, at 150°C is shown in Table 3. Table 4 shows electric characteristics of different liquids used for the improvement of capacitors. (Tested "urea" Mc 529, Tallowja-2, Mc 521 and vaseline oil.) The characteristics of the experimental capacitors impregnated with the same liquids are shown in Table 5. Table 6 shows the changes of the characteristics of experimental capacitors during the process of aging (up to 200 hours). The devices used in the tests

were: "DUPP" bridge with an "AS501" vibrational galvanometer and an "AS501" amplifier for examining the specific inductive capacity and loss angle at 50-cycle frequency and 1 kv voltage, at 400 to 5,000-cycle frequency, and "AS 1" bridge with a 20-4 sound generator and an "ASIM-2" indicator were employed; at frequencies up to 0.7 megacycles, the "TV-1" was applied. The authors conclude that all three new silico-organic liquid dielectrics deserve to be thoroughly examined. In particular "Mc 529" liquid must be paid attention to. The main characteristics must be paid attention to. The main characteristics of specific, inductive, capacitive, at 20°C: 3.05, the tangent of the loss angle at 20°C: 0.0002; specific resistance at 150°C: 10<sup>10</sup> ohms; evaporation loss after 60 hours at 150°C: 1.21 %, there are 6 tables, 9 graphs, and 3 references, 2 of which are

**ASSOCIATION:** Institute Khimi, filial of the Institute of the Chemistry of Silicones at the AS USSR (Gol'dberg, Rzhanov, Khudobain); Lenin Institute of Polytechnic Institute, Lenin, M.I. Klinin (Lebedeva, Polytechnic Institute, Lenin, M.I. Klinin) (Fenna, Soyata).

**SUBMITTED:** July 21, 1959

Card 4/4

Englich, I. Svetlik.

Card 3/4

DOLGOV, B.N., doktor khim.nauk, prof. [deceased]; KHUDOBIN, Yu.I., inzh.; KHARITONOV, N.P., kand.khim.nauk; RENNE, V.T., doktor tekhn.nauk, prof.; BONDARENKO, P.N., inzh.; SOYA, G.P., inzh.

Effect of the composition and structure of the molecules of certain organosilicon liquids on their electrical properties. Izv. vys. ucheb. zav.; energ. 5 no.6:31-36 Je '62. (MIRA 15:6)

1. Institut khimii silikatov AN SSSR (for Dolgov, Khudobin, Kharitonov).
2. Leningradskiy politekhnicheskiy institut imeni M.I.Kalinina (for Renne, Bondarenko, Soya).  
(Silicon organic compounds--Electric properties)

ACCESSION NR: AP4045825

S/0105/64/000/009/0076/0080

1  
B

AUTHOR: Renne, V. T. (Doctor of technical sciences, Professor);  
Soya, G. P. (Engineer)

TITLE: Investigation of the heat resistance of capacitor paper

SOURCE: Elektricheatvo, no. 9, 1964, 76-80

TOPIC TAGS: paper capacitor, capacitor paper, heat resistance, capacitor paper heat resistance

ABSTRACT: Three mechanisms of destruction of cellulose by heat — pyrolysis, hydrolysis, and oxidation — are briefly discussed. In its initial stage, the destruction is due to the breaking of long molecular chains, to depolymerisation; the mechanical strength of the capacitor paper decreases while its electrical characteristics do not deteriorate. A high-sensitivity instrument for the pneumatic punching of capacitor paper, developed by the Ukrainian Scientific

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ACCESSION NR: AP4045825

Research Institute of Paper and Cellulose Industry, is described. Specimens of Soviet (KON-II), French (Bollore), Japanese, and Finnish (Tervakoski) capacitor paper were heated for up to 36 hrs at temperatures within 150—200C and then tested for strength. Curves illustrating the test results are supplied. Orig. art. has: 6 figures and 2 formulas.

ASSOCIATION: Leningradskiy politekhnicheskiy institut im. M. I. Kalinina (Leningrad Polytechnic Institute)

SUBMITTED: 05Feb64

ENCL: 00

SUB CODE: EE, EC

NO REF SOV: 004

OTHER: 001

Card 2/2

SOYMA, B. I., doctor

Second scientific conference on problems of the climato-pathology of cardiovascular diseases. Vop. kur., fizioter. i lech. fiz. kult. 28 no.4:377-380 Jl-Ag '63.

(MIRA 17:9)

SOYBEL', B.I.; ALEKSANDROV, N.G.

Sudden deaths from diseases of the cardiovascular system in  
Andizhan Province. Kardiologiya 5 no.1:86-87 Ja-F '65.

(MIRA 18:9)

1. Kafedra sudebnoy meditsiny (zav.- kand. med. nauk V.A.  
Kazhev) Andizhanskogo meditsinskogo instituta.

SOYBEL'MAN, B. I.

PA 13/49T7

USSR/Chemistry - Analysis, Semimicro Jul/Aug 48  
Chemistry - Sulfates, Determination of

"Semimicroanalytic Determination of Sulfates by  
Iodate Method," B. I. Soybel'man, Chair of Gen  
Chem, Stanislavskiy Med Inst, 52 pp

"Zhur Analit Khimii" No 4

Demonstrates possibility of utilizing barium iodate  
for iodometric determination of sulfates. Results  
agree fairly well with those given by gravimetric  
analysis. Centrifuge method enables two tests to be  
made simultaneously which is essential for control  
purposes. Submitted 9 Aug 47.

10/49T7

SOYBEL'MAN, B.I.

Electrovibrator. Lab. delo 8 no.4:47-49 Ap '62.

(MIRA 15:5)

1. Kafedra obshchey khimii Stanislavskogo meditsinskogo instituta.  
(MEDICAL LABORATORIES—EQUIPMENT AND SUPPLIES)

SOYBEL'MAN, B.I.

Simple appliance on a gas or spirit lamp for the production  
of high temperature flame. Khim. v shkole 17 no.1:87 Ja-F '62.  
(MIRA 15:1)

1. Stanislavskiy meditsinskiy institut.  
(Laboratories—Apparatus and supplies)

SOYBEL'MAN, B.I.

Rapid determination of potassium as the cobaltinitrite with  
EDTA ending of the analysis. Ukr.khim.zhur. 28 no.2:242-245  
'62. (MIRA 15:3)

1. Stanislavskiy meditsinskiy institut.  
(Potassium—Analysis) (Cobalt compounds) (Acetic acid)

SOYBEL'MAN, L.M.

Development of osteoarticular tuberculosis in pregnancy and  
after labor. Akush. i gin. 35 no.3:110-111 My-Je '59.

(MIRA 12:8)

1. Iz kabineta po kostnomu tuberkulezu Chernovitskogo oblastnogo  
tuberkuleznogo dispanseera (glavnnyy vrach Yu.M. Lenova).

(TUBERCULOSIS, OSTEOARTICULAR, in pregn.

(Rus))

(PREGNANCY, in various dis.

tuberc., osteoarticular (Rus))

SOYBEL'MAN, L.M.

Treatment of patients with osteoarticular tuberculosis during pregnancy, after labor and after abortion. Akush. i gin. 39 no.3:88-91 My-Je'63 (MIRA 17:2)

1. Iz Chernovitskogo oblastnogo protivotuberkuleznogo dispansera (glavnnyy vrach Yu.M. Lenova).

SOYBEL'MAN, L.M.

Osteoarticular tuberculosis and pregnancy. Probl. tub. 41  
(MIRA 17:1)  
no. 5:28-32 '63.

1. Iz kabinet po kostnemu tuberkulosu Chernovitskogo  
oblastnogo protivotuberkuleznego dispansera (glavnyy  
vrach Yu.M. Lenova).

SOYBEL'MAN, L.M.

Indications to interruption of pregnancy in osteoarticular  
tuberculosis. Sov. med. 28 no.7:80-84. Jl. '64. (MIRA 18:8)

1. Kabinet po kostnomu tuberkulezu Chervovitskogo oblastnogo  
protivotuberkuleznogo dispansera (glavnnyy vrach. Yu. M. Lenova).

SOYBEL'MAN, S., inzh.

Construction of buildings with large slabs of natural stone in seismic  
areas. Zhil. stroi. no. 3:24 Mr '61. (MIRA 14:4)  
(Moldavia—Earthquakes and building)

SOYBEL'MAN, S., inzh.

Testing the trial section of an experimental five-story  
large-panel apartment house. Zhil. stroi. no.1:24-26 '64.  
(MIRA 18:11)

SOYBEL'MAN, Samuil Minas yevich; TROGUN, Moisey Natanovich;  
SNITKO, F.M., "doktor tekhn. nauk, prof., nauchn. red.

[Examples of the calculation of sectional frames by the  
moment-distribution method] Primery rascheta slozhnykh ram  
po metodu raspredeleniya momentov. Moskva, Stroizdat,  
1965. 73 p. (MIRA 18:4)

SOYDLA, T.R.

Preliminary map of the complementations at the ad2 locus in  
yeast *Saccharomyces cerevisiae*. Genetika no.3:127-131 S '65.  
(MIRA 18:12)

1. Leningradskiy gosudarstvennyy universitet, kafedra  
genetiki i selektsii. Submitted March 30, 1965.

SOYDRA, I. G.

"The Marxist-Leninist Economic Thought in Estonia During the Period of Bourgeois-National Dictatorship."

dissertation defended for the degree of Candidate of Economy at the Inst. for Economy.

Defense of Dissertation (Jan-Jul 1957)  
Sect. of Economy, Philosophy, and Jurisprudence  
Vest. AN SSSR, 1957, v. 27, No. 12, pp. 126-128

BURAKAUSKAS, A.A.; SEKOLLER, S.; SOYDRO, I.G.; STUKONOZHENKO, P.

Achievements of veterinary service in the Baltic republics  
during the 25 years of Soviet rule. Veterinarija 42 no.8:10-  
16 Ag '65. (MIRA 18:11)

1. Nachal'nik Upravleniya veterinarii Litovskoy SSR (for Burakauskas).
2. Glavnyy veterinarnyy vrach Upravleniya veterinarii Litovskoy SSR (for Shkoller).
3. Nachal'nik Upravleniya veterinarii Estonskoy SSR (for Soydro).
4. Zamestitel' nachal'nika Upravleniya veterinarii Latviyskoy SSR (for Stukonozhenko).

OVSYANNIKOV, N.A.; SOYENKO, V.A.; RAGULINA, D.V.

Improve the economic indices of the work of canning plants.  
Kons. i ov. prom. 18 no.12:26-28 D '63. (MIRA 17:1)

1. Ukrainskiy nauchno-issledovatel'skiy institut konservnoy  
promyshlennosti.

SOYENYI, Ervin, Dr.

Experiences with retroperitoneal air insufflation. Magy. radiol. 10  
no.1:41-49 Mar 58.

1. Szegedi Orvostudomanyi Egyetem I. sz. Belgyogyaszati Klinika  
(igazgato: hetenyi Geza dr. egyetemi tanar) koslemenye.  
(PNEUMOPERITONIUM, ARTIFICIAL  
retropneumoperitoneum (Hun))

S/196/65/000/001/011/035  
E193/E383

AUTHORS: Prokopalo, O.I. and Soyer, V.G.

TITLE: The potential distribution in polycrystalline barium titanate

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, no. 1, 1963, 19, abstract 1 B60. (In collection: Segnetoelektriki (Ferroelectrics), Rostov-na-Donu, Rostovsk. un-t, 1961, 120-122)

TEXT: The probe method was used in a study of the potential distribution in polycrystalline  $\text{BaTiO}_3$  and some  $\text{BaTiO}_3$ -base solid solutions in a wide temperature interval. It was shown that  $\text{BaTiO}_3$  retained its linear characteristics in the  $293\text{-}673\text{ K}$  ( $20\text{-}400\text{ }^\circ\text{C}$ ) range. Large scatter of experimental results at room temperature was associated with surface contaminants and could be eliminated by careful cleaning and preliminary annealing. A deviation in the potential distribution from the linear was observed on heating the specimens above  $723\text{ K}$  ( $450\text{ }^\circ\text{C}$ ), this effect persisting up to  $923\text{ K}$  ( $650\text{ }^\circ\text{C}$ ) at a field strength of  $10\text{ V/cm}$ . Linearity of the potential distribution was restored on further heating. It was

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The potential distribution ...

S/196/65/000/001/011/035  
E193/E383

postulated that with increasing intensity of the electric field the range in which the potential distribution deviated from the linear decreased. Nonlinearity observed by the present authors resembled the effect due to build-up of a volume charge. This, it would appear, was caused by the fact that the transfer of the negative charge from the electrode to the specimen was impeded when a certain temperature was reached. There are 1 figure and 3 references.

[Abstracter's note: Complete translation]

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SOYFER, A.M.  
25616

Metodicheskiye Zadachi Prepodavaniya Konstruktorskikh Distsiplin. Vestnik  
Vyssh. Shkoly, 1948, No. 6, s. 25-27

SO: LETOPIS NO. 30, 1948

SOV/112-58-2-3313

Translation from: Referativnyy zhurnal, Elektrotehnika, 1958, Nr 2, p 234 (USSR)

AUTHOR: Soyfer, A. M.

TITLE: The Possibility of Ultrasonic Investigation of Component Vibrations  
(O vozmozhnostyakh issledovaniya vibratsiy detaley s pomoshch'yu ul'trazvuka)

PERIODICAL: Tr. Kuybyshevsk. aviat. in-ta, 1957, Nr 3, pp 49-56

ABSTRACT: An ultrasonic method of vibration measurement is set forth which is based on an ultrasonic beam reflected from a vibrating surface and received by a resonance converter; the beam is amplitude-modulated in the above case. By analyzing the reflected beam modulation, as recorded on an electromagnetic oscillograph, the vibration characteristic of the reflecting surface can be discovered.

Yu. Ya. B.

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24.4000

82187

S/12<sup>4</sup>/59/000/011/017/017  
A005/A001

Translation from: Referativnyy zhurnal, Mekhanika, 1959, No. 11, p. 221, # 14386

AUTHOR: Soyfer, A.M.

TITLE: Search for Methods of Design Damping of Oscillations in Gas  
Turbine Engine Parts

PERIODICAL: Tr. Nauchno-tekhn. soveshchaniya po izuch. rasseyaniya energii pri  
kolebaniyakh uprugikh tel. Kiyev, AN UkrSSR, 1958, pp. 268-286

TEXT: Under the name of design damping the author understands the dissipation of oscillation energy in joints and couplings. The damping properties of connecting seams of sheet materials were investigated: a) roller welding seams; b) point welding seams; c) riveted seams. Enlarging the distance of the seam from the sheet edges, the author succeeded in approximating the damping properties of a sheet with roller welding seam to those of a sheet with riveted seam (the relaxation time is half as short as in the continuous sheet). For piping, a damper was developed which represents a short sheath having a steel wire packing and put on the pipe (when inducing oscillations by tearing off a 10-kg-load, the dissipation energy of the pipe having the damper near the maximum antinode was

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S/124/59/000/011/017/017  
A005/A001

Search for Methods of Design Damping of Oscillations in Gas Turbine Engine Parts

fifteen times greater than that of the pipe without damper). For compressor blades the design of an internal core is proposed, the profile of which is similar to the blade profile. Experiments with a steel plate having a steel core with a 0.01 - 0.02-mm gap filled with graphite grease yielded a sharp reduction of the relaxation time of oscillations.

V.K. Zhitomirskiy

LX

Card 2/2

69343

SOV/123-59-20-85405

1959, Nr 20, p 384 (USSR)

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 20, p 384 (USSR)

26.1000

AUTHOR: Soyfer, A.M.TITLE: Structural Problems of Increasing the Reliability of Aircraft Gas Turbine Engines (GTE)PERIODICAL: Tr. Kuybyshevsk. aviat. in-ta, 1958, Nr 6, pp 27 - 38

ABSTRACT: An account is given of the working trend of the "Design of Aircraft Engines" department of the Kuybyshev Aviation Institute in the research and investigation of methods to increase the reliability of GTE by way of damping the vibrations of engine parts. Problems connected with the increase of reliability of GTE are investigated. A short description is given of the state and results of work on the active damping of vibrations of engine parts. It is suggested to use as shock-absorbing material wire packings and laminated springs, which ensure stability, elasticity, and high damping properties. In order to increase the shock-absorbing qualities of casings, welded and riveted joints, assembled double-sheet walls, etc. were investigated. Models of forged and cast blades with insertion pieces were studied. Together with wire connections and shock

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SOV/123-59-20-85405

Structural Problems of Increasing the Reliability of Aircraft Gas Turbine Engines (GTE)

absorbers in hollow blades, it is recommended to investigate the banding flanges, retainers, and, in particular, the shock-absorbing effect on account of friction in the retainers. The author gives statistical data on defects in the VK-1 engine, diagrams of the shock-absorbing characteristics of various engine parts, as well as exemplary schemes of the most favorable layout of various shock absorbers on the piping sections of the engine.

L.I.A. *✓*

Card 2/2

SOV/147-58-1-19/22

AUTHORS: Soyfer, A.M. and Filekin, V.P.

TITLE: The Structural Damping of Oscillations in Thin-walled Shells of a Type Used in the Components of a Turbo-jet Engine (Konstruktivnoye dempfirovaniye kolebaniy tonkostennykh obolochek tipa korpusnykh detaley GTD)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya Tekhnika, 1958, Nr 1, pp 158-164 (USSR).

ABSTRACT: There is a large group of thin-walled plates and shells which have a very dense spectrum of natural frequencies in their working range. For these the known methods of reducing the amplitude of oscillation are difficult to apply and but little effective. For this reason, the authors have investigated the damping of oscillations by introducing into the structure distributed internal resistances using natural elements of the structure. The basic features of the method are as follows: 1) Damping is achieved by internal resistances arising in the component elements of the structure as it oscillates; 2) Damping of the oscillations is accomplished by distributed (over the surface of the components of the structure) resistive forces; 3) To create a damping effect natural components of the structure are used. The experimental

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SOV/147-58-1-19/22

The Structural Damping of Oscillations in Thin-walled Shells of  
a Type Used in the Components of a Turbo-jet Engine

method described in this paper makes possible a qualitative conclusion about the effectiveness of structural damping for thin-walled shells. It is to be noted that a reduction in amplitude by dissipation of energy is accomplished over a wide range of resonance frequencies. This is explained by the resistive forces being distributed. The inner layer of a two-layer shell can be used not only for damping the oscillations and as a force element, but also to increase the heat resistance of the outer layer. This paper is a first attempt at making and investigating shells with structural damping. There are 4 tables and 6 figures.

ASSOCIATION: Kafedra konstruktsii aviadvigateley, Kuybyshevskiy  
aviatsionnyy institut (Chair of Aircraft Engine Con-  
struction, Kuybyshev Aviation Institute)

SUBMITTED: November 10, 1957

Card 2/2      1. Cylindrical shells--Oscillation    2. Cylindrical shells  
                  --Structural analysis    3. Oscillations--Reduction

SOV/147-58-3-15/18

AUTHOR: Soyfer, A.M.  
Buzitskiy, V.N.

TITLE: Normal Stresses Occurring During Torsional Oscillations  
of Turbine Blades (O normal'nykh napryazheniyakh,  
voznikayushchikh pri krutil'nykh kolebaniyakh lopatki)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Aviatsionnaya  
Tekhnika, 1958, Nr 3, pp 119-125 (USSR)

ABSTRACT: Modern gas turbines employ compressor (especially axial  
compressor) with very thin blades of the order of  
1,75 to 3% thickness but with fairly high tolerances,  
0.2 to 0.3 mm. The exact shape and thickness of the  
blades is checked only at some selected station, so that  
this also may lead to a fair discrepancy between the  
computed and the actual profiles of the blade along its  
axis. This may lead to appreciable normal stress being  
produced in the blade during its torsional oscillations.  
The object of the experiments, discussed in this paper,  
was to show the possibility of existence of these  
stresses, to establish dependence of these stresses on  
the manner of variation in thickness of the blade along  
its axis and to assess their magnitude in relation to the

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SOV/147-58-3-15/18

## Normal Stresses Occurring During Torsional Oscillations of Turbine Blades

stresses produced in bending. The experiments were carried by means of strain-gauges and the loading in torsion was either static or dynamic, the latter at the resonance conditions. In order to obtain a qualitative picture of the phenomenon the theory of constrained torsion of their open profiles was employed (i.e. thin plates profiles). Such profiles have a very small modulus of rigidity in torsion and therefore tend to flatten. If this flattening is restricted (e.g. the clamped end of the blade or even a sharp increase in thickness), we have the case of restricted torsion which results in normal stresses being produced at cross-sections of the blade (as given in Ref. 1, 2 and 3) their magnitude being given by Eq. 1, where  $\theta$  is the angle of twist of the cross-section,  $d^2\theta/dz^2$  - is the rate of change of this angle along the axis Z and  $w$  is the principal function of torsion and depends upon the form of the transverse section as follows.

$$W = \int_0^s p ds$$

p - being the radius from the centre of shear to the mean line of the profile; the method of

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Normal Stresses Occurring During Torsional Oscillations of Turbine  
Blades

determining  $w$  is described in Ref.1 to 3. The magnitude of the normal forces produced in the blade during the flattening of its profiles is determined (according to V.Z.Vlassov) by so-called bending-torsion bi-moment  $B$  (Eq.2) which gives the flux of so-called "secondary" shear stresses  $\tau_c$  as a result of the existence of the normal stresses, as given by Eq.3,  $\delta$  being the thickness of the profile (cross-section) of the blade. These secondary shear stresses are small but they give rise to a moment which may be equal to or even larger than the moment due to pure torsion, its value being: Eq.4.  $I_w$  - is the second moment of the area. Thus an applied twisting moment  $M_{xp}$  is opposed by two internal moments  $M_p$  (pure torsion) and  $M_c$  (constricted torsion), i.e.  $M_{xp} = M_p + M_c$ , so that Eq.6 gives the final relation between them. If, as a first approximation,  $M_p$  be neglected and the blade considered as a cantilever (in accordance with Ref.1) Eq.7 gives the expression for the normal stresses due to constricted torsion. This expression is analyzed for

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SOV/147-58-3-15/18

## Normal Stresses Occurring During Torsional Oscillations of Turbine Blades

the following assumptions: 1) the vane chord and the form of the mean line of the profile are constant along the axis of the blade; 2) the thickness of the blade increases towards the root of the blade (i.e.  $\delta = f(z)$ ); 3) the twisting moment is applied at the free end. The integral  $\int M_k p dz$  represents then a triangle whose vertex is at the free end of the blade and the base is at the root of the blade. Since the blade grows thicker towards its root, depending upon the rate of increase of  $I_w$  and  $\int M_k p dz$  along the axis of the blade, there will be a section where  $I_w$  prevails over the integral, so that  $\delta_2$  at first increases and then decreases towards the root of the blade, which is confirmed by experiments as shown in Fig.3 and Fig.4. Fig.1a and 2 show the method of experimental investigations for the case of static loading and Fig.1b and 4 show the arrangements for the case of dynamic loading. For the static loading 3 strain-gauges were used (1, 2, 3 in Fig.1a and 2) and for the dynamic loading 4 (1, 2, 3, 4 in Fig.1b) these always being attached on the concave surface.

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SOV/147-58-3-15/18

## Normal Stresses Occurring During Torsional Oscillations of Turbine Blades

Standard blades of the turbine RD - 3 were used. First experiments were carried on the blade as taken out of production line and then on the convex side its thickness was reduced starting from the free end over a length of 90 mm, then 105, 125 and 155 mm (as indicated by the thick black lines on the Fig.1a) for the case of static loading and over lengths of 90, 110, 140, 160 and 190 mm for the case of dynamic loading (Fig.1b) also starting from the free end of the blade. Curves 1, 11, 111, 1V, and V in Fig.3 and 1 to V1 in Fig.5 correspond to each successive reduction of thickness along the blades tested. Stator blades were used for static loading and rotor blades for dynamic loading, which was obtained by means of a pneumatic pulsator operated by an electric (shunt) motor. From the graphs the following conclusions can be drawn: 1) the character of normal stresses in the blade of standard form subjected to torsional oscillation is similar to that produced under a static torsional moment (i.e. the maximum exists at some intermediate section); 2) the maximum stress is shifted along the

Card 5/7

SOV/147-58-3-15/18

Normal Stresses Occurring During Torsional Oscillations of Turbine  
Blades

axis of the blade depending on the way in which the thickness of the blade varies; under certain circumstances it may be at the section where there is a sharp change in thickness; 3) the normal stresses due to torsional oscillations are comparable in magnitude to those produced in bending and may even be larger than bending stresses, especially in the case of resonant oscillations. Hence, when designing the blades the above factors should be kept in mind and the change in thickness along the axis of the blade should be arranged

Card 6/7

SOV/147-58-3-15/18

Normal Stresses Occurring During Torsional Oscillations of Turbine  
Blades

so that it leads towards lower normal stresses due to  
constricted torsion. There are 5 figures and 3 Soviet  
references.

ASSOCIATION: Kuybyshevskiy Aviatsionnyy Institut, Kafedra  
Konstruktsii Aviadvigateley (Kuybyshev Institute of  
Aeronautics, Chair of Aeroengine Construction)

SUBMITTED: 4th March 1958.

Card 7/7

SOV/124-59-8-9148  
Translation from: Referativnyy zhurnal, Mekhanika, 1959, Nr 8, p 118 (USSR)

AUTHOR: Soyfer, A.M.

TITLE: On the Dynamic Similarity in Certain Dissipative Mechanical  
Oscillating Systems

PERIODICAL: Tr. Kuybyshevsk. aviat. in-t, 1958, Nr 6, pp 101 - 113

ABSTRACT: The author determines the similarity in dissipative mechanical oscillating systems, having in view the comparison of various constructive arrangements tending to raise up the damping properties of the systems in question. The bending oscillations of composite beams are discussed. If the damping forces are relatively small, the oscillations are assumed to be approximately harmonic; therefore, the nonlinearity of the oscillation process can be characterized by a small parameter introduced into the expression of a resistance force in the differential equation. The author determines the dependence of the supplied and full energy on the parameters of an arbitrary system to gain the possibility of recalculating the dissipation function obtained from a sample

Card 1/2

✓A

NIKITIN, Yu. M.; TUMANSKIY, S. K., doktor tekhn. nauk, retsenzent;  
SOYFER, A. M., kand. tekhn. nauk, dotsent, retsenzent;  
ZHUKOV, K. A., inzh., retsenzent; SKUBACHEVSKIY, G. S.,  
prof., doktor tekhn. nauk, red.; YANOVSKIY, I. L., inzh.,  
red.; KHRUSTALEVA, A. A., red. izd-va; ORESHKINA, V. I.,  
tekhn. red.

[Designing elements of parts and units of aircraft engines]  
Konstruirovaniye elementov detalei i uslov aviatcionnykh  
dvigatelei. Pod red. G. S. Skubachevskogo. Moskva, Gos.  
nauchno-tekhn. izd-vo Obrorongiz, 1961. 287 p.

(Airplanes--Engines)

(MIRA 14:12)

ACCESSION NR: AT4040402

S/0000/63/000/000/0269/0275

AUTHOR: Soyfer, A. M.; Buzitskiy, V. N.

TITLE: Manufacture and application of new-type all-metal elastic damping elements

SOURCE: Nauchno-tehnicheskoye soveshchaniye po voprosam kolebaniy s uchetom rasseyaniya energii. 4th, 1962. Rasseyaniye energii pri kolebaniyakh uprugikh sistem (Scientific-Technical Conference on Problems of Vibrations with Dissipation of Energy Taken into Account, 1962. Dissipation of Energy in Vibrations of Elastic Systems). Trudy\* soveshchaniya. (Proceedings of the Conference). Kiev, Izd-vo AN UkrSSR, 1963, 269-275

TOPIC TAGS: damping element, elastic damping element, metallic damping element, metallic shock absorber, DK shock absorber, ATSM shock absorber, shock absorber

ABSTRACT: The manufacture and operating characteristics of a new type of metallic damping elements and their use in various vibration-damping devices such as shock absorbers are described. The damping elements, Author Certificate No. 136608, are made from a material  
Card 1/3

ACCESSION NR: AT4040402

(designated "MR"—metallic rubber) whose structure represents an aggregate of spatial lattices built from thin metallic spirals similar to rubber macromolecules. Depending on the intended use and operating conditions, carbon, stainless, and heat resistant steels, nichrome, constantan, and other special alloys are used, as wire materials. The wire diameter is usually 0.03—0.25 mm. The wire is wound into a dense spiral 0.15—1.0 mm in diameter, which after winding is stretched to 3 to 6 times its original length. The necessary length of such a spiral is placed in a die and cold formed into the desired shape. Damping elements (plates, washers, bushings, etc.) formed from MP material work well in a wide range of pulsating compression loads and in a narrower range of bending, shearing and tension loads. Elements with widely varying mechanical properties are made by suitable arrangements of spirals. The Scientific Research Laboratory of the Kuybyshev Aviation Institute has developed two types of metallic shock absorbers with MR elements. One of them the DK, is a multidirectional type shock absorber capable of damping vibrational loads at any arbitrary angle to the axis. Its damping characteristics are 3-4 times as good as those of the series produced rubber-metal AP ("Lord") shock absorbers. The second — the ATSM, is a supporting type shock absorber, similar to

Card 2/3

ACCESSION NR: AT4040402

the "Met-L-Flex" shock absorber widely used in the aviation industry abroad, but with damping characteristics twice as high. Both shock absorbers have an indefinite shelf life and can be used for protection against vibration of instruments, machines, and components operating in aggressive media at high or low temperatures. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 23Nov63

DATE ACQ: 28May64

ENCL: 00

SUB CODE: MD

NO REP SOV: 000

OTHER: 000

Card 3/3

L 02529-67 EWT(d)/EWT(1)/EWT(m)/EWP(w)/EWP(v)/T-2/EWP(k) IJP(c) JD/NW/EM

ACC NR:

AR6017084

SOURCE CODE: UR/0285/66/000/001/0015/0015

AUTHOR: Setin, A. D.; Soyfer, A. M.; Polyanskiy, I. A.; Filekin, V. P.

TITLE: Rigidity variation and damping capacity of a gas turbine engine housing  
with horizontal flanged connection

SOURCE: Ref. zh. Turbostroyeniye, Abs. 1.49.114

REF SOURCE: Tr. Kuybyshevsk. aviat., in-t, vyp. 19, 1965, 183-193

TOPIC TAGS: turbine engine, vibration damping, bending stress, material deformation

ABSTRACT: The rigidity of the gas turbine housing has a strong effect on critical rotor conditions. The authors study the change in rigidity and damping capacity when the housing is deformed in models of gas turbine engine housings with horizontal flanged connection. It is shown that bending deformation in housings of this type may cause slippage which reduces the bending rigidity of the housing and increases power dissipation. This type of housing has a two-phase static deformation cycle which is satisfactorily represented by the static cycle of a composite rod properly designed to act as an equivalent rod for the housing. The reduction in housing rigidity due to slippage is 10-30% of the initial value which gives a dissipation factor  $\psi=0.2-0.6$ . The relative rigidity of the housing and the dissipation factor basically conform satisfactorily to the theoretical relationships. The

Card 1/2

UDC: 621.438-21.001.5

60  
59  
B

L 02196-67 EWT(1)/EWT(m)/EWP(j)/T IJP(c) JD/WH/DJ/RM

ACC NR: AP6031374 (4) SOURCE CODE: UR/0145/66/000/007/0067/0069

AUTHOR: Soyfer, A. M. (Professor); Kodnir, D. S. (Docent); Bayborodov, Yu. I.  
(Aspirant)

ORG: Kuybyshev Aviation Institute (Kuybyshevskiy aviatzionnyy institut)

TITLE: Elastic sliding bearing from the "MR" elasto-damping material combined  
with tetrafluoroethylene polymer

SOURCE: IVUZ, Mashinostroyeniye, no. 7, 1986, 67-69

TOPIC TAGS: bearing material, teflon, antifriction material, bushing

ABSTRACT: A new design for a sliding bearing with an elastic bushing made of the  
"MR" elasto-damping material combined with teflon resin is described. An anti-  
friction layer of sheet tetrafluoroethylene resin is firmly bound to the "MR" material  
during the pressing of blanks of bushings. Orig. art. has: 3 figures. [Based on  
authors' abstract] [NT]

SUB CODE: 13/ SUBM DATE: 27Sep85/ ORIG REF: 002/

ACC NR: AP6025583 (N) SOURCE CODE: UR/0413/66/000/013/0011/0012

INVENTOR: Soyfer, A. M.; Buzitskiy, V. N.; Pershin, V. A.

ORG: None

TITLE: A method for producing unwoven "MR" material from wire. Class 7, No. 183174

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 13, 1966, 11-12

TOPIC TAGS: wire product, pressure casting

ABSTRACT: This Author's Certificate introduces a method for producing unwoven "MR" material from metal wire. This material is used for producing elements and parts used in damping systems, shock absorbers and seals. To ensure proper shape of parts and increase their elastic hysteresis properties, spiral sections of wire are crossed over and set in a die casting mold corresponding in shape and size to the finished product. These are then pressed at 500 kg/cm<sup>2</sup> and the pressure is increased depending on the desired elasticity of the finished product. Whenever it is required, an elastic anticorrosion filler is introduced under pressure.

SUB CODE: 13/ SUBM DATE: 27Jul60

Card 1/1

UDC: 672.85

ACC NR: AP6033505

SOURCE CODE: UR/0413/66/000/018/0136/0136

INVENTOR: Soyfer, A. M.; Kodnir, D. S.; Bayborodov, Yu. I.

ORG: none

TITLE: Three-layer slide bearing. Class 47, No. 186225. [Announced by the Kuybyshev Aviation Institute (Kuybyshevskiy aviationsionnyy institut)]

SOURCE: Izobret prom obraz tov zn, no. 18, 1966, 136

TOPIC TAGS: aircraft engine bearing, slide bearing, teflon, antifriction bearing, engine component, protective coating, BEARING MATERIAL

ABSTRACT: The proposed three-layer slide bearing has a first layer made of hard material, an intermediate layer of porous, elastic material, and an inner layer made of teflon, pressed into the elastic material of the intermediate layer with the teflon penetrating to a certain depth into its pores (see Fig. 1). In order to increase the damping properties and the wear resistance of the bearing when the shaft is misaligned as well as to ensure variable stiffness in the tangential and axial directions, the intermediate layer is made of the elastic-damping wire mesh described in the Author Certificate No. 136608. Orig. art. has: 1 figure.

Card 1/2

UDC: 621.822.5

ACC NR. AP6033505.

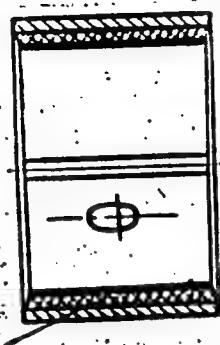


Fig. 1. Three layer slide bearing

Intermediate layer of  
elastic-damping wire

SUB CODE: /3/ SUBM DATE: 220ct63/

Card 2/2

OVCHINNIKOV, Yu.F.; SOYFER, D.V.; CHIKHACHEV, O.P.; Prinimali uchastiye:  
ARBUZOV, B.A.; GORBUNOV, A.M.; KLEYNER, L.M.

Making aluminum alloy parts with intricate internal channels.  
Alium. splavy no.1:195-201 '63. (MIRA 16:11)

24.5200

82329  
S/139/60/000/037008/045AUTHORS: Ostroumov, G.A. and Soyfer, G.B.TITLE: Heat Transfer of a Horizontal Wire Heated by an  
Alternating CurrentPERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika,  
1960, Nr 3, pp. 52 - 55 (USSR)ABSTRACT: In an earlier paper (Ref 1) the authors dealt with measuring the heat release of a wire in various fluids in the case of periodic heating. A comparison of the obtained results with the calculated heat transfer resulting from molecular heat conductivity in an equivalent solid body has revealed great differences. This is attributed to the fact that the real experimental conditions (the finite lengths of the wire soldered onto massive terminals, the limited volume of the reservoir) differ considerably from the general assumptions made in literature, which were used for the calculations (cylindrical wire of infinite length, infinite distance from other bodies at a given temperature). Therefore, the authors considered it advisable to compare the experimentally determined heat transfer from a wire *4*

Card 1/3

82329

S/139/60/000/03/008/045

E073/82329

## Heat Transfer of a Horizontal Wire Heated by an Alternating Current

placed in a liquid and a wire fused into a solid medium. The test arrangement was the same as that described in the earlier communication (Ref 1). A platinum wire of 0.05 mm dia, about 10 mm length, was brazed onto copper leads of about 3 mm dia, which were placed into an aluminium reservoir filled with sulphur and heated by an alternating current. The reservoir was placed into a special thermostat. Sulphur was considered as a suitable medium due to its favourable fusion temperature and also because on solidification there are no shrinkage cavities. The heating was effected by means of a modulated 50 cps current, whereby the modulation frequency varied between 0.05 and 30 cps. As a result, a heating current with a large number of frequencies was obtained. The results are plotted in graphs, Figures 1-4. It was found that the heat transfer during periodic heating of the cylinder has the following features: in a liquid medium not only the reactive but also the active component of the heat flow increases with frequency; in contrast to a solid medium, where the reactive component of the heat transfer

Card2/3

82329

S/139/60/000/03/008/045

E073/E235

Heat Transfer of a Horizontal Wire Heated by an Alternating Current

is almost proportional to the heating frequency in a liquid medium the reactive heat flow shows a dependence on the frequency which can be expressed by a power relation whereby the power is less than unity and more than 0.5. Even in the described simple case, non-steady state convection proved very complex and requires further investigation. There are 4 figures and 2 Soviet references.

ASSOCIATION: Permskiy gosuniversitet (Permsk State University)

SUBMITTED: April 23, 1959

Card 3/3

GRECHISHKIN, V.S.; SVETLOV, Yu.G.; SOYFER, G.B.

Variation of the multiplet nature of the spectrum of quadrupole nuclear resonance in solid  $CCl_4$ . Fiz. tver. tela 3 no.8:2390-2393 Ag '61. (MIRA 14:8)

1. Permskiy gosudarstvennyy universitet im. A.M. Gor'kogo.  
(Carbon tetrachloride)  
(Nuclear magnetic resonance and relaxation)

GRECHISHKIN, V.S.; SOYFER, G.B.

Investigating orientational melting in certain crystals by  
the nuclear quadrupole resonance method. Fiz. tver. tela 3  
no.9:2791-2793 S '61. (MIRA 14:9)

1. Permskiy gosudarstvennyy universitet imeni A.M. Gor'kogo.  
(Crystals--Thermal properties)  
(Nuclear magnetic resonance and relaxation)

5/181/62/004/008/033/041  
B108/B102

AUTHORS:

Grechishkin, V. S., and Soyfer, G. B.

TITLE:

Change in the multiplet structure of the nuclear resonance spectrum in chloral alcoholate crystals

PERIODICAL: Fizika tverdogo tela, v. 4, no. 8, 1962, 2268 - 2269

TEXT: The temperature dependence of the nuclear quadrupole resonance of Cl<sup>35</sup> in CCl<sub>3</sub>C(OH)<sub>2</sub>C<sub>2</sub>H<sub>5</sub> was investigated in the interval 77 - 320°K. The techniques are described in earlier publications (FTT, 3, 2390, 2791, 1961). The spectrum which was observed up to 39°C shows an abnormal behavior. The lines ν<sub>1</sub> and ν<sub>2</sub> have nearly the same temperature coefficients, line ν<sub>3</sub> has a considerably greater coefficient. At about 120°C the triplet turns into a doublet. This behavior is attributed to a change in the interatomic distances in the molecule. Piezoelectric resonance signals were observed which are proof of piezoelectric properties of chloral alcoholate. The proton resonance signal at room temperature in a field of

Card 1/2

Change in the multiplet ...

S/181/62/004/008/033/041  
B108/B102

5000 oe has a fine structure. This is possibly related to a retarded rotation of the methyl groups. There is 1 figure.

ASSOCIATION: Permskiy gosudarstvennyy universitet im. A. M. Gor'kogo  
(Perm' State University imeni A. M. Gor'kiy)

SUBMITTED: April 21, 1962

Card 2/2

S/141/62/005/003/005/011  
E032/E514

AUTHORS: Grechishkin, V.S. and Soyfer, G.B.  
TITLE: Influence of crystal lattice defects on the intensity  
and form of nuclear quadrupole resonance lines of  
crystals  
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,  
v.5, no.3, 1962, 508-515  
TEXT: The spectrometer described in previous papers  
(Ref.6: PTE, 2, 31, 1959; Ref.7: Vestnik LGU, 10, 14, 1959) was  
used in the observation of the nuclear quadrupole resonance. A  
simple self-quenched super-regenerator was developed for the  
detection of Br resonances (200-300 Mc/sec); it is shown in Fig.1.  
A study was made of  $^{60}\text{Co}$   $\gamma$ -rays and X-rays (40 kV tube) on the  
intensity and width of NQR lines of the following crystals:  
 $\text{KClO}_3$ ,  $\text{NaClO}_3$ ,  $\text{Mg}(\text{ClO}_3)_2$ ,  $\text{Ca}(\text{ClO}_3)_2$ ,  $\text{Sr}(\text{ClO}_3)_2$ ,  $n\text{-C}_6\text{H}_4\text{Cl}_2$ ,  
 $\text{CCl}_3\text{COH}\cdot\text{H}_2\text{O}$  and  $\text{C}_2\text{Cl}_6$ . Doses of 150 000 r and 300 000 r ( $^{60}\text{Co}$   
 $\gamma$ -rays) were given and the intensity and width of the lines  
determined. This was repeated with X-rays (except for the last  
two crystals). It was found that the experimental errors are very  
Card 1/3

Influence of crystal lattice ...

S/141/62/005/003/005/011  
E032/E514

dependent on the uniformity and illumination of the specimens and the working conditions of the super-regenerator. When plotted as a function of time, the line intensity and width decreased with duration of irradiation. When the measurements were repeated after an interval of the order of ten days, a partial restoration of the signal was observed. Measurements were also made of the intensity of NQR lines of  $\text{Br}^{81}$  in  $n\text{-C}_6\text{H}_4\text{Br}_2$  as a function of the concentration of the following impurities:  $n\text{-C}_6\text{H}_4\text{Cl}_2$ ,  $m\text{-C}_6\text{H}_4(\text{NO}_2)_2$ ,  $\text{C}_6\text{Cl}_6$  and  $\text{C}_6\text{H}_5\text{N} = \text{NNHC}_6\text{H}_5$ . Of these four impurities the first had the largest and the last the smallest effect on the line intensity. The experiments were repeated with single crystals of  $n\text{-C}_6\text{H}_4\text{Br}_2$ . The general conclusion is that NQR studies can provide quantitative data on crystal defects, provided a calibrated spectrometer is employed and particular care is taken in the preparation of specimens. However, the accuracy of the results is not altogether satisfactory in view of the inadequate stability of the apparatus and the time necessary to complete the measurements. The super-regenerator must be continuously calibrated. There are

Card 2/3

Influence of crystal lattice ...

S/141/62/005/003/005/011  
EO32/E514

4 figures and 1 table.

ASSOCIATION: Permskiy gosudarstvennyy universitet  
(Perm State University)

SUBMITTED: October 23, 1961

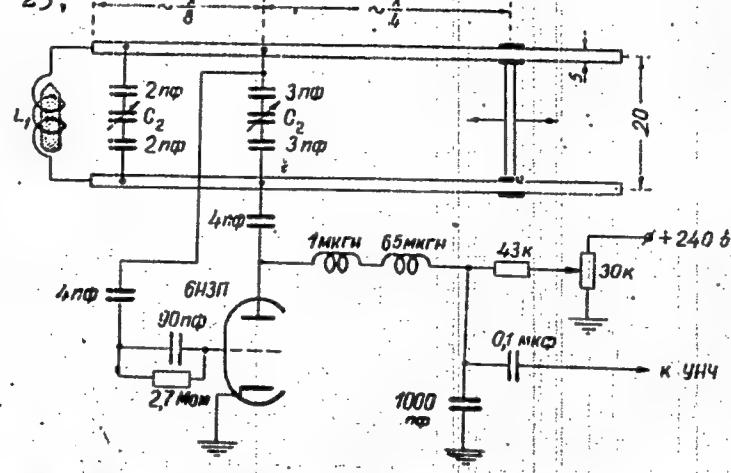


Fig.1

Card 3/3



GRECHISHKIN, V.S.; SOYFER, G.B.; SVETLOV, Yu.G.

Use of the nuclear quadrupole resonance method in studying phase transitions in certain crystals. Izv. vys. ucheb. zav.; fiz. no.5; 32-38 '63.

(MIRA 16:12)

1. Permskiy gosudarstvennyy universitet imeni A.M.Gor'kogo.

GRECHISHKIN, V.S.; SOYFER, G.B.

Change of the multiplet nature of the nuclear quadrupole resonance spectrum in crystals of octachloronaphthalene. Zhur. strukt. khim. 4 no.5:763-764 S-0 '63. (MIRA 16:11)

1. Permskiy gosudarstvennyy universitet imeni Gor'kogo.

GRECHISHKIN, V.S.; KYUNTSEL', I.A.; SOYFER, G.B.

Use of nuclear quadrupole resonance for physicochemical analysis.  
Zav.lab. 29 no.11:1310-1315 '63. (MIRA 16:12)

1. Permskiy gosudarstvennyy universitet.

ACCESSION NR: AP4018356

S/0120/54/000/001/0005/0022

AUTHOR: Grechishkin, V. S.; Soyfer, G. B.

TITLE: Apparatus for observation of the nuclear quadrupole resonance  
(a review)

SOURCE: Pribory\* i tekhnika eksperimenta, no. 1, 1964, 5-22

TOPIC TAGS: nuclear resonance, quadrupole resonance, nuclear quadrupole resonance, quadrupole resonance investigation, quadrupole resonance investigation equipment

ABSTRACT: Well-known phenomena of the nuclear quadrupole resonance are briefly described. The effect of apparatus factors upon the quadrupole-resonance curve shape is discussed. The application of a squeegging oscillator in a super-regenerative spectrometer is described. The principle of Zeeman modulation is also mentioned. Stationary methods for observation of the nuclear quadrupole

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ACCESSION NR: AP4018356

resonance are set forth with a brief discussion of a number of electronic circuits used for this purpose. The principal connection diagrams of various self-quenched and externally-quenched superregenerators are given. In discussing pulse methods of studying the nuclear quadrupole resonance, their complexity is held as their chief shortcoming. The article is concluded with a brief description of the Zeeman effect in single crystals and a discussion of automatic Zeeman-spectrometers. The supporting material for this review is taken entirely from Western sources and some Soviet sources published in 1959-63. Orig. art. has: 15 figures and 12 formulas.

ASSOCIATION: Permskiy gosudarstvennyy universitet (Perm' State University)

SUBMITTED: 15Jul63

DATE ACQ: 18Mar64

ENCL: 00

SUB CODE: PH, NS

NO REF SOV: 022

OTHER: 071

Card 2/2

GRECHUSKIN, V.S.; SCYFER, G.B.

Nuclear quadrupole resonance in chloro-derivatives of naphthalene.  
Zhur. strukt. khim. 5 no.6:914 N-D '64. (MIRA 18:4)

1. Permskiy gosudarstvennyy universitet.

L-16687-65 EWT(1)/EIT(m)/EWP(1)/EBC(t)  
AFWL/ASD(a)-5 RM  
ACCESSION NR: AR5000781

Pc-4/Pob I/P(c)/RAEM(c)/SSD/SSD(s)/  
S/0058/64/000/010/D040/D040

SOURCE: Ref. zh. Fizika, Abs. 10D311

AUTHORS: Grechishkin, V. S.; Soyfer, G. B.

TITLE: Nuclear quadrupole resonance frequencies and the chemical bond

CITED SOURCE: Tr. Yestestv. nauch. in-ta pri Perm'sk. un-tu, v. 1, no. 2, 1964,  
3-103

TOPIC TAGS: nuclear quadrupole resonance, chemical bond, absorption frequency,  
spectral characteristic, magnetic resonance

TRANSLATION: A review is presented of the main work on the application of nuclear  
quadrupole resonance for the investigation of chemical bonds in solids. A detailed sum-  
mary is presented of all the experimental data on the absorption frequencies at different  
temperatures. The table lists the spectral characteristics of 751 compounds. The

Card 1/2

L 16687-65

ACCESSION NR: AR5000781

table of the NQR frequencies is used for a qualitative analysis. Bibliography, 209 titles.

SUB CODE: GP, NP

EXCL: 00

Card 2/2

L 16686-65 EWT(m)/EPF(c)/EWP(j) Pg-4/Pr-4 RAEM(c)/ASD(a)-5 RM  
ACCESSION NR: AR5000782 S/0058/64/000/010/D040/D040

SOURCE: Ref. zh. Fizika, Abs. 10D314

AUTHORS: Grechishkin, V. S.; Soifer, G. B.

TITLE: Influence of hydrogen bonds on quadrupole interactions in chloral derivatives

CITED SOURCE: Tr. Vsesotsv.-neuchn. in-ta pri Permsk. un-tu, v. 11, no. 2, 1964, 125-127.

TOPIC TAGS: nuclear quadrupole resonance, hydrogen bond, line splitting, magnetic resonance

TRANSLATION: A multiplet structure, consisting of three lines whose frequencies decrease with increasing sample temperature, was detected in the NQR spectra, observed for the first time in chloral-ammonia and chloral-acetone. The splitting of the resonance lines is due to the interaction of the atoms entering in a hydrogen bond. An estimate of the value of this splitting, made within the

Card 1/2

L 16686-65

ACCESSION NR: AR5000782

framework of the electrostatic theory of the hydrogen bond, is close to the experimental result. A. Vashman.

SUB CODE: NP, OC

ENCL: 00

Card 2/2

ARTEM'IEV, Ye.I.; SOYFER, L.M.; VEGRA, N.L.; BEGAK, V.A., redaktor;  
SEDOV, V.M., inzhener, retsenzent.

[Technical specifications for major repairs on D6 type engines]  
Tekhnicheskie uslovia na kapital'nyi remont dvigatelei tipa D6.  
Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1951.  
416 p.  
(MLRA 7:4)  
(Diesel engine)

SOYFER, L.M.

New agricultural machinery for the Northwest. 'Mashinostroitel'  
no.9:11-12 S '61. (MIRA 14:10)

1. Zamestitel' glavnogo konstruktora Glavnogo konstruktorskogo  
byuro po sel'skokhozyaistvennym mashinam dlya Severo-Zapadnoy  
zony SSSR.

(Riga—Agricultural machinery industry)

SOV/51-6-3-25/28

AUTHORS: Tsirlin, Yu.A., Komnik, S.N. and Soyfer, L.M.TITLE: Dependence of the Luminescence Yield of  $\alpha$ - and  $\gamma$ -Excited  
CsI(Tl) Crystals on the Concentration of Tl (Zavisimost'  
vykhoda lyuminestsentsii pri  $\alpha$ - i  $\gamma$ -vozbuzhdenii  
kristallov CsJ(Tl) ot kontsentratsii Tl)PERIODICAL: Optika i Spektroskopiya, 1959, Vol 6, Nr 3, pp 422-424,  
(USSR)

ABSTRACT: CsI(Tl) crystals have many advantages when used in scintillation counters. The present paper reports the dependence of the luminescence quantum yield of CsI(Tl) excited with either  $\alpha$ -particles from  $Po^{210}$  or  $\gamma$ -rays from  $Cs^{137}$  on the amount of Tl; the latter was varied from 0.005 to 0.5 wt. %. The  $\alpha$ -yield (Fig.2) reaches saturation at about 0.1% Tl. The  $\gamma$ -yield (Fig.3) has a maximum at 0.01 - 0.03% Tl and falls slowly with further increase of the Tl concentration. The ratio of the  $\alpha$ -particle and  $\gamma$ -ray yields ( $\alpha/\gamma$ ) is shown in Fig.4 as a function of the amount of Tl in CsI(Tl); this Card 1/2 ratio reaches saturation ( $\alpha/\gamma = 0.55$ ) at about 0.1% Tl.

SOV/51-6-3-25/28

Dependence of the Luminescence Yield of  $\alpha$ - and  $\gamma$ -Excited CsI(Tl)  
Crystals on the Concentration of Tl

The curves of Figs. 2 and 3 were obtained by irradiation of 2 mm thick disks cut from monocrystals grown by the Stockbarger method. A typical distribution of Tl along a monocrystal is shown in Fig. 1. The quantum yields were found using a FEU-29 photomultiplier and either (a) measuring the anode current of the photomultiplier (the results are denoted by circles in Figs. 2 and 3), or (b) counting the pulses and measuring their peaks (crosses in Figs. 2 and 3). Both methods gave identical results which show that the scintillation decay time is independent of the amount of Tl. Acknowledgment is made to a group of workers led by A.M. Bulgakova who analysed the crystals for thallium. There are 4 figures and 10 references, of which 4 are Soviet, 4 English, 1 Swiss and 1 Italian.

SUBMITTED: July 14, 1958

Card 2/2

LAVRENT'YEV, F.F.; SOYFER, L.M.

Chamber for high-temperature research. Prib. i tekhn. eksp. no.3:  
(MIRA 14:10)  
151 My-Je '60.

1. Khar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo  
instituta khimicheskikh reaktivov.  
(High temperatures)

BENGUS, V.Z.; LAVRENT'YEV, F.F.; SOYFER, L.M.; STARTSEV, V.I.

Exposure of dislocations in calcite crystals. *Kristallografiia*  
5 no.3:441-445 My-Je '60. (MIRA 13:8)

1. Khar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo  
instituta khimicheskikh reaktivov.  
(Calcite crystals)

SoyFER, L.M.

S/070/60/005/03/006/008

E132/E360

AUTHORS: Lavrent'yev, F.F., Soyfer, L.M., and Startsev, V.I.

TITLE: Thermal Etching and Annealing of Twinned Layers in  
Crystals of Antimony

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 3, pp.472-475

TEXT: The study of twinned layers with dimensions 5 to 20  $\mu$  in single crystals of antimony has shown that annealing at 600  $^{\circ}\text{C}$  (for less than 5 hours) leads to the establishment of monocrystallinity in the specimen. The twin boundaries and the glide steps are the place where the most intense thermal etching occurs. Edge dislocations have been discovered both in the parent crystal and in the twinned part. The dislocation lines lie in the  $\bar{1}\bar{1}\bar{1}$  plane. The  $\bar{1}\bar{1}\bar{1}$  planes in antimony are the directions of the principal cleavage. The crystals of antimony were obtained, after preliminary zone refining, by the Shubnikov-Obreimov method. Specimens were in the form of plates 2-3 mm thick and 10-12 mm in diameter. They were prepared by cleaving the crystal which had been grown. The deformation produced in this process gave rise to the twinned layers mentioned. The examination was carried out

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S/070/60/005/03/006/008

E132/E360

Thermal Etching and Annealing of Twinned Layers in Crystals of  
Antimony

with a MIM-7 metallurgical microscope using oblique illumination and by the divergent-beam X-ray technique (reflexions from 111 and 001 planes being used). Annealing at 600° was carried out in a current of hydrogen. Intense thermal etching accompanied the annealing process. A special high-temperature camera was used to follow the course of the etching under these conditions. There are 5 figures and 11 references: 8 Soviet and 3 English.

ASSOCIATION: Khar'kovskiy institut mekhanizatsii i elektrifikatsii sel'skogo khozyaystva (Khar'kov Institute for the Mechanisation and Electrification of Agriculture),  
SUBMITTED: September 18, 1959

Card 2/2

3/070/60/005/005/019/026/XX  
E132/E160

AUTHORS: Startsev, V.I., Bengus, V.Z., Lavrent'yev, F.F., and  
Soyfer, L.M.

TITLE: The Formation of Dislocations in the Twinning of Calcite

PERIODICAL: Kristallografiya, 1960, Vol.5, No.5, pp.737-743

TEXT: It is found that in calcite a twin boundary not containing dislocations is made visible by selective etching although the intensity of etching is significantly less than the intensity of etching at dislocations. The existence of incoherent twin boundaries containing dislocations has been experimentally shown. In the crystal in the twinning process complete dislocations are formed. The twins were produced by Garber's method (Ref.5). Twin layers were studied on the face of the crystal not forming steps on twinning, i.e. 100 or 010. The twin plane could be indexed as 110 with the boundaries of the twinned layers parallel to [001].

There are 4 figures and 12 references: 11 Soviet and 1 English.

ASSOCIATION: Vsesoyuznyy institut khimicheskikh reaktivov,  
Khar'kovskiy filial (All-Union Institute for Chemical  
Reagents Khar'kov Branch)

Card 1/1 SUBMITTED: February 2, 1960

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S/051/60/008/04/018/032  
E201/2691

AUTHORS:

Tairlin, Yu. A., Startsev, V.I. and Sosfer, L.M.

TITLE:

Luminescent Properties of Calcium Iodide Crystals Grown from  
Superheated Melt

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 4, pp 537-540 (USSR)

ABSTRACT: Knoepfel, Loepfe, Stoll et al., (Refs 1-3) reported that CaI crystals grown from superheated (to 800-900°C) melts exhibit luminescence and have an d-yield of 9.3%. The present authors repeated Knoepfel, Loepfe, Stoll et al's work using analytically pure (Series 1), zone-refined (Series 2) and very pure (Series 3) CaI crystals. Crystals of Series 1 and 2 were found to contain  $2.3 \times 10^{-4}$ - $2.7 \times 10^{-5}$ % Tl; their absorption spectra (Fig 1) had a Tl band at 299 m $\mu$ . Series 3 crystals were subjected to chromatographic purification and quadruple re-crystallization; this treatment reduced the amount of Tl in them to below  $10^{-7}$ % (Fig 2) and no scintillations were observed on excitation with  $\gamma$ -rays. Samples of each series were placed in carefully cleaned quartz ampules, which were evacuated, sealed and heated for up to 5 hours at 900°C. After such heating temperature of the melt was reduced and new crystals were grown at the rate

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S/020/60/134/004/006/023  
B019/B067

AUTHORS: Soyfer, L. M. and Startsev, V. I.

TITLE: Some Phenomena Which Were Observed During the Deformation of  
Antimony Monocrystals

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 134, No. 4,  
pp. 795 - 798

TEXT: The authors investigated the twinning process of antimony monocrystals caused by mechanical deformations by studying selective corrosion which allows dislocations to be determined. The samples (thin disks, 2 - 3 mm thick, diameter: 10 - 15 mm) were cut out from the monocrystal in the direction of the (111) cleavage traces, the caustic solution was composed of 9 unit volumes of concentrated nitric acid and 4 unit volumes of distilled water. As appears from Figs. 1 and 2 a dis-twinning leads to an incomplete regeneration of the crystal lattice and causes lattice defects. These defects in turn cause a hardening of the crystal. The experiments also showed that the dislocations may form at any point of the twinning layers. As is shown by theoretical

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Some Phenomena Which Were Observed During  
the Deformation of Antimony Monocrystals

S/020/60/134/004/006/023  
B019/B067

considerations and by experiments (Refs. 3, 4) elastic twinning does not lead to disorientation of these two blocks if the angle between the two blocks is not more than 2 - 3°. During the study of selective corrosion it was observed that this angle is smaller than 1/2°. Finally, it is demonstrated that dislocations occur in high-purity antimony monocrystals on bending the crystals also by a gliding of the crystallographic planes. This is in contrast with the assertions made earlier (Ref. 7). R.I.Garber and V. M. Kosevich are mentioned. The authors thank V. G. Bengus and F. F. Lavrent'yev for the discussion of the results. There are 4 figures and 7 Soviet references.

ASSOCIATION: Khar'kovskiy filial Vsesoyuznogo nauchno-issledovatel'skogo  
instituta khimicheskikh reaktivov (Khar'kov Branch of the  
All-Union Scientific Research Institute of Chemical Reagents)

PRESENTED: May 11, 1960, by I. V. Obreimov, Academician

SUBMITTED: April 29, 1960

Card 2/2

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S/058/62/000/006/063/136  
A061/A101

X

AUTHORS: Naboykin, Yu. V., Dobrokhotova, V. K., Uglanova, V. V., Soyfer, L. M.

TITLE: The growth of organic single crystals with impurities and study of their optical properties

PERIODICAL: Referativnyy zhurnal, Fizika, no. 6, 1962, 11, abstract 6E87  
(In collection: "Rost kristallov. T. 3". Moscow, AN SSSR, 1961,  
326 - 331. Discuss., 501 - 502)

TEXT: The scintillation properties of naphthalene and diphenyl single crystals with anthracene and salicylic acid amide impurities, grown by Stokbarger's method, are considered. Crystals 14 mm in diameter and 10 mm high were obtained. The use of some of them in scintillation counters is shown to be practically possible. It has been found that the solubility of the impurity is an important factor in the production of organic mixed single crystals for use in counters. It has been established that in molecular crystals growing from a melt, impurities usually enter the crystal lattice as individual molecules.

[Abstracter's note: Complete translation]

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Sb20/61/138/005/012/025  
B104/B205AUTHORS: Soyfar, L. M., and Startsev, V. I.TITLE: Motion of dislocations in antimony crystalsPERIODICAL: Akademiya nauk SSSR. Doklady, v. 138, no. 5, 1961.  
1084-1087

TEXT: The motion of dislocations in antimony crystals has been studied by a selective etching method described in a previous paper of the authors (DAN, 134, no. 4, 795 (1960)). A previously etched crystal was fastened in a glass vessel such that a narrow slit was left between the bottom of the vessel and the face to be examined. The etching solution was poured into the slit. The pressure applied to the crystal was high enough to ensure free motion of dislocations, which was examined under a microscope and photographed. The motion of dislocations was clearly visible. Strongly marked initial and final positions of the etching pits are interconnected by traces of moving pits (weakly marked pits) (see Fig. 1). Crystallographic studies have shown that antimony has three glide patterns characterized by the three  $\{111\}$  planes, which appear on the plane examined.

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S/020/61/138/005/012/025

Motion of dislocations in <sup>2520</sup> amorphous ...

B104/B205

the (111) plane, as the three slip planes  $\langle 1\bar{1}0 \rangle$ . All these glide patterns are produced by pressure, as has already been shown in the previous paper mentioned above. The distances between two fixed positions occupied by a moving dislocation amounts to  $0.2 - 10\mu$ . The dislocations move at velocities ranging from  $1 \cdot 10^{-7}$  to  $3 \cdot 10^{-5}$  cm/sec. Their velocity rises with increasing pressure. Studies of twin dislocations indicate that dislocation loops originating at the twin boundaries are widened in their slip planes. This phenomenon was established even without applying external mechanical stress. From the ratio of the density of the loops to the width of the twin layers, the conclusion is drawn that narrow twin layers are stressed more strongly than wide ones. Next, a description is given of the interaction of dislocations, which could be studied by the method applied here. It was found that two dislocations meeting during motion will unite. Further, the authors describe the curvilinear motion of dislocations, in which case the latter do not move in one slip plane but in different planes successively. The motion of dislocations is essentially determined by the surrounding impurity atoms, which reduce their mobility. A marked decrease in the number of dislocations is displayed by freshly grown crystals which are etched under pressure. This phenomenon

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